

# Smart evolution of Africa's megacities will help address infrastructure challenges

Facing rapid growth and evolution in Africa's megacities, radical and effective urban management is needed. Lagos, Cairo and Kinshasa already have more than 10-million residents, while Johannesburg, Nairobi, Dar es Salaam and Khartoum are fast approaching this figure.



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Against this background, Sharoda Rapeti, smart cities Africa leader at Deloitte says, “Rapid urban migration of the population is placing demands on existing infrastructure and transportation networks which are expected to perform beyond their original design. The total number of people living in African cities is projected to increase from 400-million to 760-million by 2030 and 1.26-billion by 2050.”

## Common challenges and objectives

African megacities also face common challenges while attempting to remain competitive in securing sufficient resources to maintain and grow the city. Each city is unique when it comes to its geographic layout and architecture – varying landscapes have different infrastructure requirements.

These cities do, however, have common objectives, such as the safety and security of their citizens and the provision of services in the form of utilities, transportation networks and sustainability, as well as equity and social inclusion.

In comparison to mature cities like London and New York, African cities tend to fall behind the “competitive curve”. However, over the past decade, large multinational information technology (IT) companies have predicted that Africa will be “the next big market” due to the emergence of many rapidly growing economies.

According to Rapeti, proactive steps on the part of decision makers in both the public and private sectors to develop these megacities as “smart” cities will go a long way towards addressing many of the challenges they face. A smart city, she argues, will draw on the resources of its people and technology to:

- Increase its economic competitiveness,
- Strengthen sustainability efforts that promise economic growth and quality of life for current and future generations, and
- Improve the overall quality of life for its inhabitants.

Rapeti shared Deloitte's insights into these and related subjects as a panellist and moderator at the Smart Buildings & Infrastructure Western Cape Summit in Cape Town on 23 August. Some of the key themes she focused on included smart buildings and the increased risk of cyber risks, real estate and the increasing relevance of blockchain, as well as smart cities and the vital role of governments.

## Potential risks of smart infrastructure

She advises that while smart infrastructure and smart buildings promise significant benefits to owners and operators in terms of efficiency, safety and comfort, these systems also carry potential risks, as they can act as tempting targets for would-be hackers and or malicious insiders.

"Smart cities will elevate cyber risk as a strategic issue, develop policies and frameworks, spread awareness, and support with investment into implementation. Smart buildings planners should adopt a targeted and multi-pronged cybersecurity strategy that is secure, vigilant, and resilient," she said.

Another trend Rapeti explored at the summit was how blockchain, the digital ledger technology behind crypto-currencies like bitcoin, is becoming increasingly relevant for real estate, threatening to disintermediate long-established players with "bank in", transparent fraud prevention and smart contracts.

"Technologies like these are at the heart of the smart city, and Deloitte is playing a leading role, both globally and in Africa in shaping the conversation around how best to minimise the challenges and capitalise on the opportunities they present."

To this end, Deloitte recently developed an Integrated Smart Cities Framework, which identifies six elements African megacities need to adopt in order to become sustainable smart cities that attract investment:

1. Smart governance that includes improved revenue management, administration and policies.
2. Smart living dealing with sewage and sanitation water supply, electricity, storm water drainage, housing and citizen safety.
3. Smart people requiring better education, participation in public life, improved health services and the inclusive development of all citizens.
4. Smart mobility that deals with transport and logistics infrastructure.
5. Smart environment that tackles the challenges of pollution and sustainable resource management.
6. Smart economy that ensures growing income levels, job creation and reduced poverty levels.

According to this framework, a smart, sustainable city is an innovative city that uses information and communication technologies and other means to improve quality of life, efficiency of urban operation and services, and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social and environment aspects.

## Role of IoT in developing critical infrastructure

It further identifies the internet of things (IoT) as playing a pivotal role in the development of critical infrastructure in smart cities in Africa. IoT can be used to manage multi-trillions of data points making smart cities a benefactor of connected solutions. IoT offers a wide range of new applications and solutions that create more efficient lighting, surveillance and maintenance of public areas, garbage collection, transport, parking and even traffic management (smart mobility).

The application of these new technologies within the urban context allows the implementation of an interconnected strategy for the whole city, combining and using data from buildings, as well as from public and private transport.

Rapeti explained, "By adopting advanced technologies and taking lessons from more mature cities, the anticipated population growth does not need to be a hindrance, but should be viewed as an opportunity to enhance functionality, economic and social development. Within the solutioning also lies abundant opportunity for African countries to design and implement local manufacturing capabilities."

## **Leapfrogging into the mid-21st century**

Deloitte is currently working with major players in the public sector and has built strong alliance partnerships with technology and telecommunications companies to build a Smart City Centre of Excellence in Africa.

Rapeti believes that thanks to these and other initiatives, including the judicious promotion of local manufacturing, African cities are well positioned to leapfrog some of the more established counterparts into the mid-21st century and achieve quantum growth.

“By adopting the appropriate selection of technology and investing into digital skills creation, African cities will be able to create job opportunities, improve the quality of life for their citizens and become more competitive in the international economic landscape. We at Deloitte are committed to playing our part in making that smart future a reality.”

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